

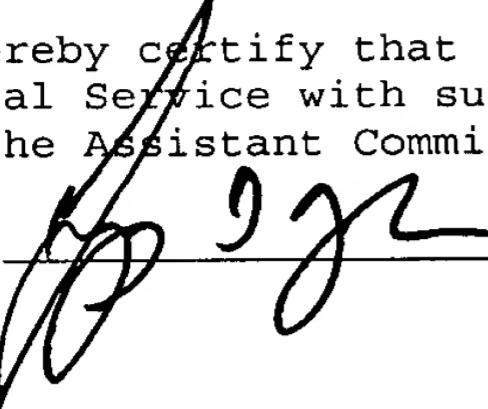


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RESPONSE
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By: 

Date: JUN 29, 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Andreas Lenniger et al.

Applic. No. : 09/436,598

Filed : November 9, 1999

Title : Power Semiconductor Module With Ceramic Substrate

Examiner : David E. Graybill

Group Art Unit : 2814

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R E S P O N S E under 37 C.F.R. § 1.116

Hon. Commissioner of Patents and Trademarks,
Washington, D. C. 20231

S i r :

Responsive to the final Office action dated March 2, 2001, the following remarks are made:

Reconsideration of the application is requested.

Claims 1 to 7 remain in the application.

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On pages 1 to 2 of the above-identified Office action, claims 1 and 3 to 6 have been rejected as being fully anticipated by applicants' admitted prior art under 35 U.S.C. § 102.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and, therefore, the claims have not been amended.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Claim 1 calls for, *inter alia*, a power semiconductor module, including:

terminal elements for providing external terminals press-fitted into connecting element openings in a plastic housing.

As described in the specification of the instant application, the power module according to the invention of the instant application differs from the prior art in that the terminals mentioned in claim 1 are press-fitted into the opening of the housing element. See last line of claim 1 and page 7, lines 16 to 25, of the specification of the instant application.

The Examiner asserts, on page 2, lines 5 to 7, of the final Office action, that the inventive feature of the instant

application is inherent to the power modules of the prior art mentioned by applicants in the specification of the instant application. As such, the Examiner seems to believe that the *prima facie* burden has been met to shift the burden over to applicants "to require applicant[s] to prove that subject matter shown to be in the prior art does not possess the characteristic relied on." Page 4 of the final Office action. Applicants respectfully disagree with this conclusion.

Nonetheless, applicants submit the attached declaration of the inventors. Therein, the inventors clearly provide that the inventive press-fit feature is not inherent to applicants' admitted prior art.

Claim 1 is, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

Insofar as claim 1 is patentable, and due to the fact that claims 2 and 7 are ultimately dependent upon claim 1, applicants respectfully believe that the rejection of these claims under 35 U.S.C. § 103 is moot.

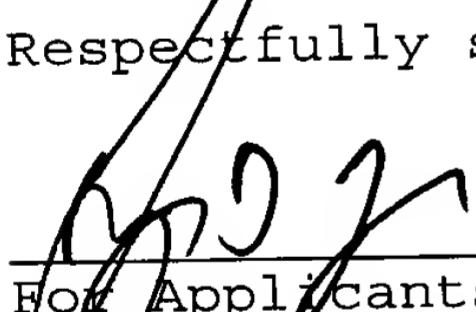
In view of the foregoing, reconsideration and allowance of claims 1 to 7 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

Petition for extension is herewith made. The extension fee for response within a period of one (1) month pursuant to Section 1.136(a) in the amount of \$110.00 in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,


For Applicants

GLM:cgm

June 29, 2001

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By: Date: JUN 29, 2001

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T. Bell
6/6/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applic. No. : 09/436,598

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Title : Power Semiconductor Module With Ceramic Substrate

Examiner : David E. Graybill

Group Art Unit : 2814

DECLARATION in accordance with 37 CFR 1.132

HON. COMMISSIONER OF PATENTS AND TRADEMARKS,
WASHINGTON, DC 20231

Sir,

In order to assist in the prosecution of this application and the traversal of the rejection of the claims by the Examiner, we, Andreas Lenniger, Dr. [inventor name], Alfred Kemper [inventor name], and Gottfried Ferber [inventor name], do hereby declare as follows:

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We are citizens of Germany, and we are the named inventors who made the invention of this application.

I, R. Lenniger [inventor 1], am a trained engineer specializing in electrical engineer. I received the degrees of Dipl.-Ing. and Dr. Ing. at the Ruhr University of Bochum in 88 [year] and 93 [year] respectively. Since 94 [year], I have been employed as manager process engineering.

I, R. Lenniger [inventor 1], am the inventor or a co-inventor of U.S. Patents 5,847,286 among others.

I, R. Kemper [inventor 2], am a trained technical manager specializing in . I received the degrees of and at the University of in [year] and [year] respectively. Since 61 [year], I have been employed as manager industrial engineering.

I, R. Kemper [inventor 2], am the inventor or a co-inventor of U.S. Patents among others.

I, G. Ferber [inventor 3], am a trained technical engineer specializing in mechanical eng. I received the degrees of and at the University of in [year] and [year] respectively. Since 61 [year], I have been employed as mechanical designer

I, G. Ferber [inventor 3], am the inventor or a co-inventor of U.S. Patents _____ among others.

We have read the specification and claims of this application, the Office action dated August 28, 2000, the response thereto filed December 29, 2000, and the final Office action dated March 2, 2001, in which claims 1 to 7 were finally rejected under Section 102(b) as unpatentable over applicants' admitted prior art. Arguments explaining why the present claims are believed to define subject matter that is not taught or suggested by the prior art are set forth herein.

Discussion

Rejection of Claims 1 to 7 under 35 U.S.C. § 102(b)

On pages 2 to 3 of the above-identified Office action, the Examiner rejected claims 1 to 22 as being fully anticipated by applicants' admitted prior art under 35 U.S.C. § 102. In the Section 102 rejection, the Examiner states that "the product of applicant's admitted prior art inherently possesses the characteristics imparted by" the feature "terminals press-fitted into housing element opening." Final Office action at page 2.

We disagree with the Examiner and agree with the analysis set forth in the Response filed December 29, 2000, and conclude that the press-fitted feature of the invention of the instant application is not inherent.

Claim 1 calls for, *inter alia*, Claim 1 calls for, *inter alia*, a power semiconductor module, including:

semiconductor components;

a plastic housing having an interior and connecting element openings formed therein;

a substrate disposed in the plastic housing defining a housing base of the plastic housing, the substrate containing a ceramic plate having a top side and a bottom side with a top metallization layer disposed on the top side and a bottom metallization layer disposed on the bottom side, the top metallization layer facing the interior of the plastic housing being patterned in order to form interconnects and equipped for and receiving the semiconductor components;

connecting elements interconnecting the semiconductor components; and

terminal elements for providing external terminals press-fitted into the connecting element openings in the plastic housing.

We have undertaken a thorough review of the specification of the instant application and the prior art and state that the invention of the instant application is not inherent to applicants' admitted prior art.

As described in the last line of claim 1 and page 7, lines 16 to 25, of the specification of the instant application, the power module according to the invention of the instant application differs from the prior art in that the terminals mentioned in claim 1 are press-fitted into the opening of the housing element.

The prior art cited in the introductory specification and the prior art references cited by the Examiner each describe power modules in which the terminal pins are injection-molded with a plastic during the production process. The disadvantage thereof is, as described on page 2, lines 1 to 13, of the specification of the instant application, that the terminal pins and the plastic have different expansion coefficients so that gaps between the plastic and the terminal pins can arise after the plastic material cools off. Such gaps lead to loose terminal pins. Such a disadvantage is, however, avoided with the power module according to the invention of the instant application because the terminal pins are not injection-molded with plastic. Rather, they are "press-fitted into . . . openings" of the power module housing during production. Such a process is not inherent to applicants' admitted prior art.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these

statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 15.6.01

Signed: 

[inventor 1]

Date: 15.06.2001

Signed: 

[inventor 2]

Date: 22.06.2001

Signed: 

[inventor 3]